

Vegetation_Index_L2

NPP_VRVI_L2

The VIIRS Vegetation Index (VI) EDR currently consists of two vegetation index products generated daily at the Imagery resolution (0.375 km at nadir) over land in swath/granule form: the Normalized Difference Vegetation Index (NDVI) from top-of-atmosphere (TOA) reflectances and the Enhanced Vegetation Index from atmospherically-corrected, top-of-canopy (TOC) reflectance with a different gain factor from that of the MODIS equation:

$$NDVI = (\rho_{I2}^{\text{TOA}} - \rho_{I1}^{\text{TOA}}) / (\rho_{I2}^{\text{TOA}} + \rho_{I1}^{\text{TOA}})$$

$$EVI = (1+L) \cdot \frac{\rho_{I2}^{\text{TOC}} - \rho_{I1}^{\text{TOC}}}{\rho_{I2}^{\text{TOC}} + C_1 \cdot \rho_{I1}^{\text{TOC}} - C_2 \cdot \rho_{M3}^{\text{TOC}} + L}$$

where the spectral bands I1 and I2 are 600 - 680 nm and 845.5 - 884.5 nm, respectively; L, C1 and C2, are constants; M3 is the spectral band over 478 - 498 nm. The M3 band (0.750 km at nadir) has twice the cell dimension of the I1 and I2 bands (0.375 km at nadir), and its value is applied to 4 equivalent-area array cells. The VI EDR is based on bidirectional reflectance factor estimates, representing intrinsic measurements for actual sensor view and sun angle conditions (Schaeppman-Strub et al. 2006). The Product Layers include quality flags on Land/water, cloud confidence

including thin cirrus, Heavy aerosol loadings, exclusion conditions.



This is an example of NPP Vegetation Index data-EVI from subset of granule NPP_VRVI_L2.A2014027.2025.P1_03001.2014028022052.hdf. Shades of green represent EVI values in the range 0 to 0.5. Black areas represent fill values. Bodies of inland water show as areas of very low EVI.

Dimensions

```
Along_Track:VegIndex_EDR = 6144 ;  
Along_Scan:VegIndex_EDR = 6400 ;
```

Variables:

```
short TOA_NDVI(Along_Track:VegIndex_EDR, Along_Scan:VegIndex_EDR) ;
```

```
Scale = 0.00039999999f ;  
Offset = -0.f ;
```

```
FILL_VALUES:...NA_INT16_FILL = -999  
MISS_INT16_FILL = -998  
ONBOARD_PT_INT16_FILL = -997  
ONGROUND_PT_INT16_FILL = -996  
ERR_INT16_FILL = -995  
ELLIPSOID_INT16_FILL = -994  
VDNE_INT16_FILL = -993  
SOUB_INT16_FILL = -992" ;
```

```
short TOC_EVI(Along_Track:VegIndex_EDR, Along_Scan:VegIndex_EDR)
```

```
Scale = 0.00039999999f ;  
Offset = -0.f ;
```

```
FILL_VALUES:...NA_INT16_FILL = -999  
MISS_INT16_FILL = -998  
ONBOARD_PT_INT16_FILL = -997  
ONGROUND_PT_INT16_FILL = -996  
ERR_INT16_FILL = -995  
ELLIPSOID_INT16_FILL = -994  
VDNE_INT16_FILL = -993  
SOUB_INT16_FILL = -992" ;
```

```
byte QF1_VIIRSVIEDR(Along_Track:VegIndex_EDR, Along_Scan:VegIndex_EDR)
```

```
FILL_VALUES:...NA_INT8_FILL = 255  
MISS_INT8_FILL = 254  
ONBOARD_PT_INT8_FILL = 253  
ONGROUND_PT_INT8_FILL = 252  
ERR_INT8_FILL = 251  
ELLIPSOID_INT8_FILL = 250  
VDNE_INT8_FILL = 249  
SOUB_INT8_FILL = 248
```

byte QF2_VIIRSVIEDR(Along_Track:VegIndex_EDR, Along_Scan:VegIndex_EDR)

FILL_VALUES:....NA_INT8_FILL = 255
MISS_INT8_FILL = 254
ONBOARD_PT_INT8_FILL = 253
ONGROUND_PT_INT8_FILL = 252
ERR_INT8_FILL = 251
ELLIPSOID_INT8_FILL = 250
VDNE_INT8_FILL = 249
SOUB_INT8_FILL = 248

byte QF3_VIIRSVIEDR(Along_Track:VegIndex_EDR, Along_Scan:VegIndex_EDR)

FILL_VALUES:....NA_INT8_FILL = 255
MISS_INT8_FILL = 254
ONBOARD_PT_INT8_FILL = 253
ONGROUND_PT_INT8_FILL = 252
ERR_INT8_FILL = 251
ELLIPSOID_INT8_FILL = 250
VDNE_INT8_FILL = 249
SOUB_INT8_FILL = 248